AP Biology Vocabulary List by Chapter

Chapter 1  
Biosphere  
Ecosystem  
Biological community  
Population  
Organism  
Organ system  
Organ  
Tissue  
Cell  
Organelle  
Molecule  
Producer  
Consumer  
DNA  
Genes  
Genome  
Emergent properties  
Negative feedback regulation  
Positive feedback regulation  
Taxonomy  
Natural selection  
Science Inquiry  
Observation  
Data  
Hypothesis  
Controlled experiment

Chapter 2  
Matter  
Element  
Compound  
Trace elements  
Atom  
Neutron  
Protons  
Electron  
Atomic nucleus  
Atomic number  
Mass number  
Atomic mass  
Isotopes  
Radioactive isotope  
Energy  
Potential energy  
Kinetic energy   
Energy levels  
Valence electrons  
Electron configuration  
Chemical bonds  
Covalent bonds  
Ionic bonds  
Hydrogen bonds  
Van der Waals interactions  
Molecule  
Single bond  
Double bond  
Triple bond  
Structural formula  
Molecular formula  
Electronegativity  
Nonpolar covalent bond  
Polar covalent bond  
Anion  
Cation  
Ionic compound  
Chemical reaction  
Reactants  
Products  
Chemical equilibrium

Chapter 3  
Cohesion  
Adhesion  
Surface tension  
Heat  
Temperature  
Specific heat  
Heat of vaporization  
Evaporative cooling  
Solution  
Solvent  
Solute  
Aqueous solution  
Hydrophilic  
Hydrophobic  
Molecular mass  
Mole  
Molar mass  
Molarity  
Hydroxide ion  
Hydrogen ion  
Acid  
Base  
pH   
pH scale  
Buffers

Chapter 4  
Organic chemistry  
Tetravalence  
Hydrocarbons  
Isomers  
Structural isomer  
Geometric isomer  
Functional group  
Hydroxyl group  
Carbonyl group  
Carboxyl group  
Amino group  
Sulfhydryl group  
Phosphate group  
ATP

Chapter 5  
Macromolecule  
Polymer  
Monomer  
Dehydration reaction  
Hydrolysis  
Carbohydrates  
Monosaccharides  
Disaccharides  
Polysaccharides  
Glycosidic linkage  
Glycogen  
Cellulose  
Chitin  
Lipids  
Fatty acid  
Glycerol  
Triacylglycerol  
Saturated fatty acid  
Unsaturated fatty acid  
Phospholipids  
Steroids  
Cholesterol  
Enzymes  
Catalysts  
Polypeptides  
Protein  
Amino acids  
R-group  
Peptide bond  
Denaturation  
Nucleic acids  
Nucleotides  
Pyrimidines  
Purines

Chapter 6   
Bound ribosomes  
Capsule  
Cell fractionation  
Cell motility  
Cell wall  
Central vacuole  
Centrioles  
Centrosome  
Chlorophyll  
Chloroplast  
Chromatin  
Chromosomes  
Cilia  
Cytoplasm  
Cytoskeleton  
Electron microscope  
Endoplasmic reticulum  
Eukaryotic cell  
Extracellular matrix (ECM)  
Flagella  
Food vacuoles  
Free ribosomes  
Gap junctions  
Golgi apparatus  
Grana  
Light/optical microscope  
Lysosome  
Microtubules/filaments  
Mitochondria  
Mitochondrial cristae  
Mitochondrial matrix  
Motor proteins  
Nuclear envelope  
Nucleolus  
Nucleus  
Peroxisome  
Phagocytosis  
Pili  
Plasma membrane  
Prokaryotic cell  
Ribosomes  
Rough E.R.   
Scanning electron microscope (SEM)  
Smooth E.R.   
Stroma  
Thylakoids  
Transmission electron microscope (TEM)  
Transport vesicles

Chapter 7   
Selective permeability  
Amphipathic molecule  
Fluid mosaic model  
Extracellular matrix  
Integral proteins  
Peripheral proteins  
Transmembrane proteins  
Transport proteins  
Channel proteins  
Carrier proteins  
Aquaporins  
Diffusion  
Concentration gradient  
Passive transport  
Osmosis  
Isotonic  
Hypertonic  
Hypotonic  
Lyse  
Osmoregulation  
Turgid  
Flaccid  
Plasmolysis  
Facilitated diffusion  
Ion channels  
Voltage gated channels  
Chemically gated channels  
Active transport  
Sodium-potassium pump  
Membrane potential  
Electrochemical gradient  
Proton pump  
Exocytosis  
Endocytosis  
Phagocytosis  
Pinocytosis

Chapter 8   
Metabolism  
Catabolic pathway  
Anabolic pathway  
Kinetic energy  
Potential energy  
Chemical energy  
First law of thermodynamics  
Second law of thermodynamics  
Entropy  
Gibbs free energy  
Enthalpy  
Kelvin  
Exergonic reaction  
Endergonic reaction  
Energy coupling  
Adenosine triphosphate  
Phosphorylated  
Activation energy  
Enzyme-substrate complex  
Active site  
Induced fit  
Coenzyme  
Competitive inhibitor  
Noncompetitive inhibitor  
Allosteric regulation  
Allosteric inhibition  
Feedback inhibition

Chapter 9

Fermentation

Cellular respiration

NAD+

Electron transport chain

Glycolysis

Krebs cycle

Oxidative phosphorylation

Substrate-level phosphorylation

Acetyl CoA

Cytochrome

ATP synthase

Proton motive force

Aerobic

Anaerobic

Alcohol fermentation

Lactic acid fermentation

Chapter 10

Photosynthesis  
Autotroph

Heterotroph

Mesophyll

Stomata

Light reaction

Calvin cycle

NADP**+**

NADPH

Photophosphorylation

Carbon fixation

Electromagnetic spectrum

Photons

Chlorophyll a

Chlorophyll b

Carotenoids

Photosystem

Primary electron acceptor

Photosystem I & photosystem II

Noncyclic electron flow

Cyclic electron flow

Rubisco

C**3** plants

Photorespiration

C**4** plants

CAM plants

Succulent

Chapter 11

Signal transduction pathway

Local regulators

Growth factors

Paracrine signaling

Synaptic signaling

Hormonal signaling

Hormones

Ethylene

Insulin

Transcription factors

G-protein linked receptors

GTP

GTPase

Kinase

Ligand gated ion channel receptors

Protein kinase

Protein phosphatases

Second messengers

Cyclic AMP (cAMP)

Adenylyl cyclase

Inositol triphosphate (IP**3**)

Diacylglycerol (DAG)

Scaffolding proteins

Chapter 12

Cell division

Cell cycle

Genome

Chromosomes

Somatic cells

Gametes

Chromatin

Sister chromatids

Centromere

Mitosis

Cytokinesis

Meiosis

Interphase

G**1** phase

S phase

G**2** phase

Prophase

Metaphase

Anaphase

Telophase

Centrosome

Cleavage furrow

Cell plate

Binary fission

Cell cycle control system

Checkpoint

G**0** phase

Cyclin

Cyclin-dependent kinases (Cdks)

Apoptosis

Density-dependent inhibition

Anchorage dependence

Cancer cells

Benign tumor

Malignant tumor

Metastasis

Chapter 13

Genetic variation

Genes

Asexual reproduction

Budding

Clone

Sexual reproduction

Karyotype

Homologous chromosomes

Sex chromosomes

Autosomes

Diploid cell (2n)

Haploid cell (n)

Fertilization

Zygote

Alternation of generations

Sporophyte

Spores

Gametophyte

Meiosis I

Meiosis II

Crossing over

Independent assortment

Recombinant chromosomes

Recombination frequency

Map units

Chapter 14

Gregor Mendel

Trait

Cross pollination

True breeding

Hybridization

P generation

F**1** generation

F**2** generation

Gene

Alleles

Locus

Dominant allele

Recessive allele

Law of segregation

Punnett square

Homozygous

Heterozygous

Phenotype

Genotype

Testcross

Monohybrids

Monohybrid cross

Dihybrids

Dihybrid cross

Law of independent assortment

Multiplication rule

Addition rule

Complete dominance

Codominance

Incomplete dominance

Multiple alleles

Polygenic inheritance

Pedigree

Carriers

Sickle cell disease

Chapter 15

Chromosomal theory of inheritance

Wild type

Mutant phenotype

Linked genes

Genetic recombination

Linkage map

Parental types

Sex-linked gene

Hemophilia

Nondisjunction

Aneuploidy

Trisomy

Monosomy

Deletion

Duplication

Inversion

Translocation

Chapter 16

Watson & Crick

Wilkins & Franklin

DNA structure

Hershey & Chase Experiments

Avery, McCarty & MacLeod Experiments

Double helix

Purines

Pyrimidines

Complementary strands

Semiconservative model

Origins of replication

Replication fork

Antiparallel

5′ end of DNA strand

3′ end of DNA strand

5′🡪3′ direction

DNA polymerase III

Leading strand

Lagging strand

Okazaki fragments

DNA ligase

Ligates

Primer

Primase

DNA polymerase I

Helicase

Topoisomerase

Chapter 17

Gene expression

Transcription

Messenger RNA (mRNA)

Translation

RNA processing

Template strand

Codons

Nontemplate strand

Initiation “start” codon

Elongation

Termination “stop” codons

Reading frame

RNA polymerase

Promoter

Terminator

Transcription unit

Transcription factors

Transcription initiation complex

TATA box

GTP cap

Poly-A tail

RNA splicing

Introns

Exons

Spliceosome

Transfer RNA (tRNA)

Anticodon

Aminoacyl-tRNA synthetase

Ribosomal RNA (rRNA)

mRNA binding site

P site

A site

E site

Mutations

Point mutations

Base pair substitutions

Silent mutations

Missense mutations

Nonsense mutations

Insertions

Deletions

Frameshift mutations

Chapter 18

Histones

Histone acetylation

DNA methylation

Heterochromatin

Euchromatin

Enhancers

Activator

Repressors

Corepressor

Transponsons

Operator

Operon

Regulatory gene

Repressible operon

Inducible operon

*lac* operon

Inducer

Activator

Cell differentiation

Cytoplasmic determinants

Differential gene expression

Genomic imprinting

Determination

Epigenetic inheritance

Feedback inhibition

Proteasomes

Oncogenes

Micro-RNA (miRNA)

Chapter 19

Viral genomes

Capsid

Viral envelopes

Bacteriophages

Host range

Lytic cycle

Virulent phage

Restriction enzymes

Lysogenic cycle

Retroviruses

Reverse transcriptase

HIV

AIDS

Vaccines

Antibiotics

Binary fission

Transformation

Transduction

Conjugation

Sex pilus

Mating bridge

Plasmid

Episome

Chapter 20

Recombinant DNA

Genetic engineering

Biotechnology

Gene cloning

Restriction site

Restriction fragments

Sticky ends

Cloning vector

DNA denaturation

Polymerase chain reaction (PCR)

Gel electrophoresis

Southern blotting

Restriction length polymorphisms (RFLP’s)

Human Genome Project

DNA microarray assays

Gene therapy

DNA fingerprint

Genetically modified organisms (GMO’s)

Chapter 21

Morphogenesis

Apical meristems

Blastula

Gastrula

Totipotent cells

Stem cells

Embryonic stem cells

Pluripotent cells

Induction

Embryonic lethals

Homeotic genes

Cell lineage

Carpels

Stamens

Petals

Sepals

Chimeras

Homeobox

Hox genes

Chapter 22

Charles Darwin

Natural Selection

Evolutionary adaptation

Evolution

Carolus Linnaeus

Taxonomy

Fossils

Paleontology

Jean-Baptiste de Lamarck

Theory of use & disuse

Theory of inheritance of acquired characteristics

H.M.S. Beagle

Alfred Russell Wallace

Descent with modification

Artificial Selection

Homology

Homologous structures

Vestigial organs

Molecular homologies

Biogeography

Chapter 23

Microevolution

Population genetics

Gene pool

Hardy-Weinberg equilibrium

5 Conditions needed for H-W equilibrium

Genetic drift

Bottleneck effect

Founder effect

Gene flow

Geographic variation

Fitness

Directional selection

Disruptive selection

Stabilizing selection

Diploidy

Heterozygote advantage

Sexual selection

Chapter 24

Speciation

Reproductive isolation

Prezygotic barriers

Postzygotic barriers

Habitat isolation

Temporal isolation

Behavioral isolation

Mechanical isolation

Gametic isolation

Allopatric speciation

Sympatric speciation

Chapter 25

Phylogeny

Fossil record

Fossil types

Morphological homology

Molecular homology

Analogy (analogous structures)

Divergent evolution

Convergent evolution

Taxonomy

Genus (genera)

Family

Order

Class

Phylum

Kingdom

Domain

Phylogenetic trees

Cladogram

Chapter 51-54

Proximate causation

Ultimate causation

Fixed Action Pattern

Kinesis

Taxis

Innate behavior

Learned behavior

Habituation

Classical conditioning

Operant conditioning

Altruism

Abiotic

Biotic

Symbiosis

Mutualism

Commensalism